

METALLURGIC DEPAT. - GILT EDGE

CRUSHING

Brohm Crusher

Ore Bin

100 Ton Ore bin with six grizzly bars

Apron feeder

48" x 16' HD feeder with AEP-0884 Apron pans

15 Hp x 1800 Rpm elect motor

Seco

5' x 8' DD Seco vibrating grizzly TB3748
Top deck 4" OPN

25 Hp x 1800 Rpm elect. motor

Saw Crusher

4248 Allis chalmers type RT single toggle

200 Hp x 1800 Rpm elect. motor
Serial # C53891

Conveyor

48" x 80' Saw discharge Conveyor

30 Hp x 1800 Rpm elect motor

Seco

6' x 20' DD. Seco Vibrating Screen 2F-804
Top deck 3" OPN bottom deck 1" OPN

Two 30 Hp x 1800 Rpm elect. motors

Cone Crusher

*600 Allis Chalmers Hydrocone Crusher

Two 200 Hp x 1800 Rpm elect. motors

Concave 7" 10" or 12"

Columbia mantle with burn ring L98
Serial *C-53909

Conveyor

36" x 65' Cone discharge Conveyor

20 Hp x 1800 Rpm elect motor

Cement Bin

Vibrating cement bin with screw feed

2 Hp x 1800 Rpm elect motor

Conveyor

36" x 48' Agglomerating Conveyor

20 Hp x 1800 Rpm elect motor

Sampler

PRH-900 Cross belt sampler

1/3 Hp x 16.5 Rpm gear motor

Conveyor

36" x 44' Stacker feed Conveyor

20 Hp x 1800 Rpm elect. motor

Conveyor

36" x 125' stacking conveyor

Two 25 Hp x 1800 Rpm Elect motors

Model 260F

Magnet

Oil cooled manual cleaning suspended
Electromagnet

Hoist

Type M10M30-14M50 Detroit hoist
5 ton capacity

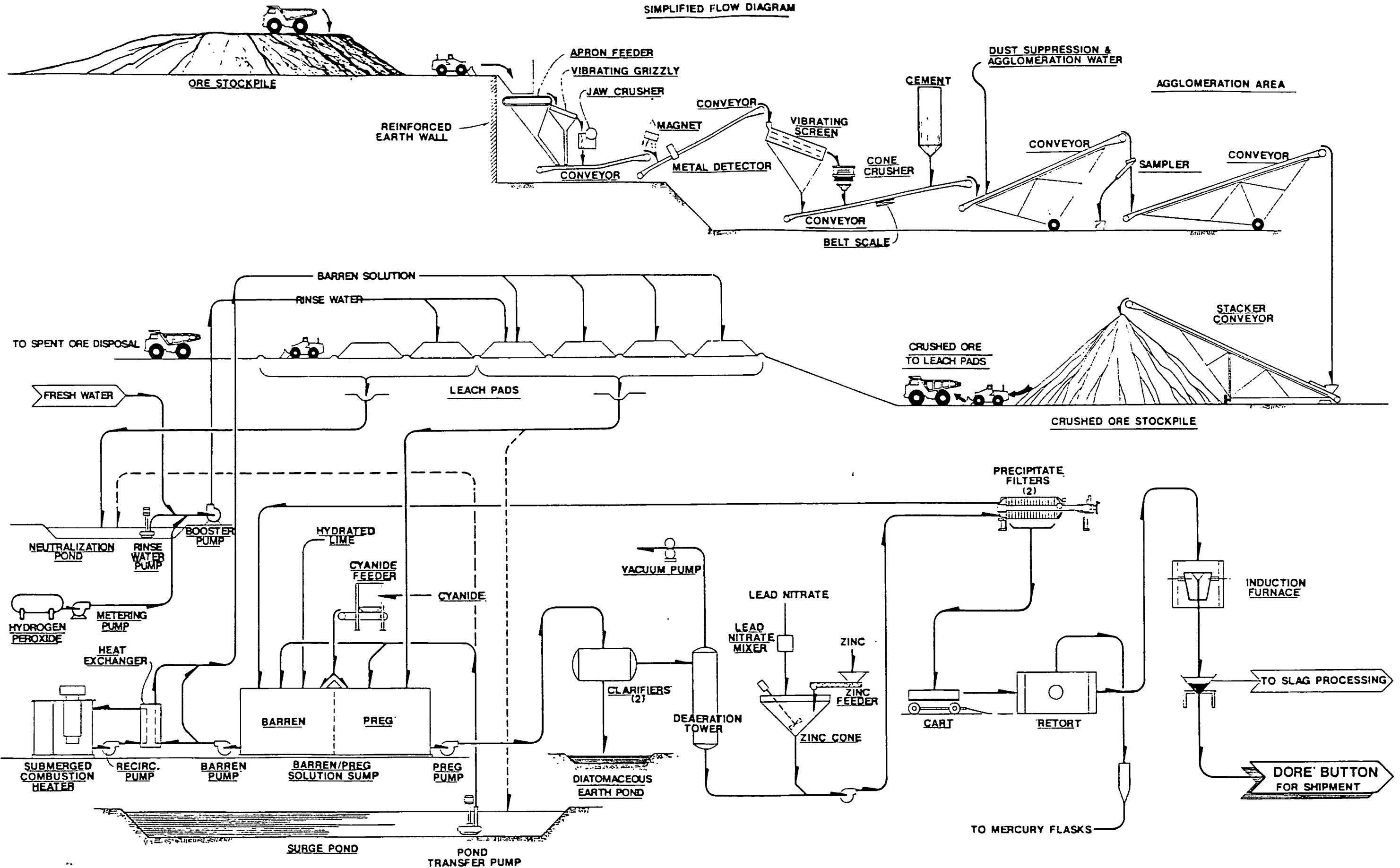
Scale

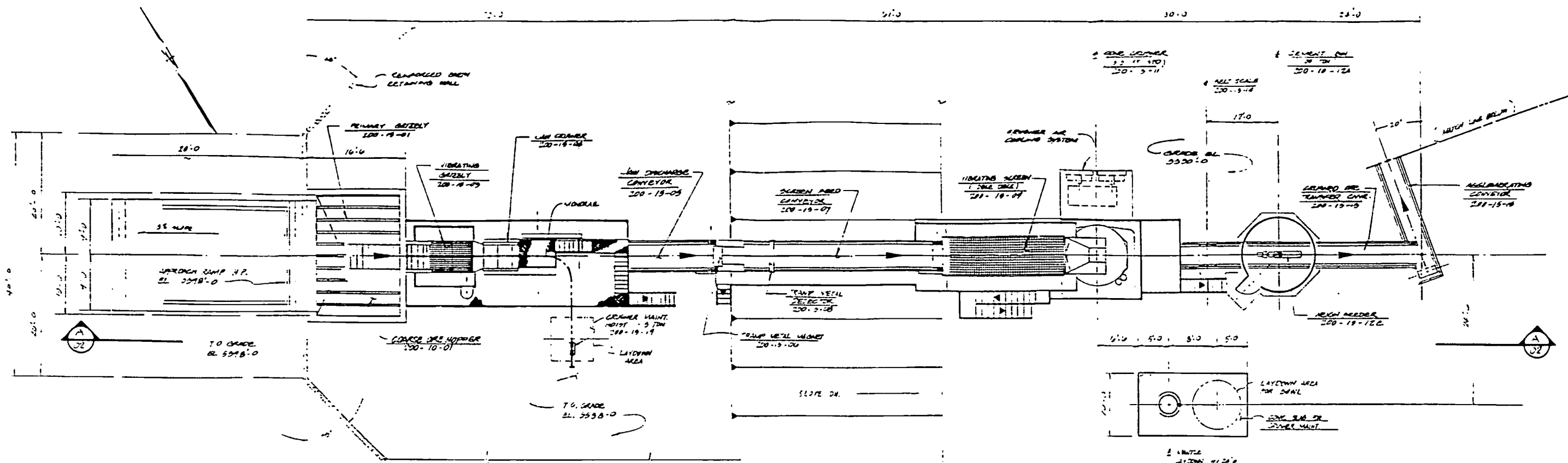
Ramsey Series 10-20A belt scale
needs to be replaced

BROHM MINING CORPORATION

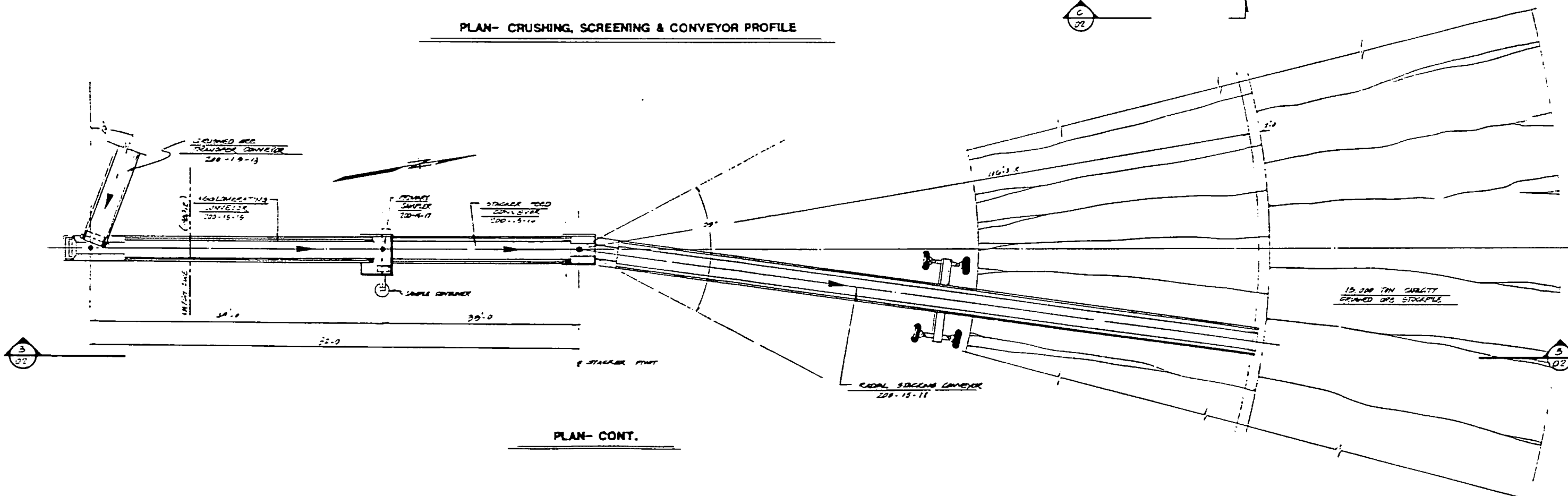
GILT EDGE PROJECT

SIMPLIFIED FLOW DIAGRAM



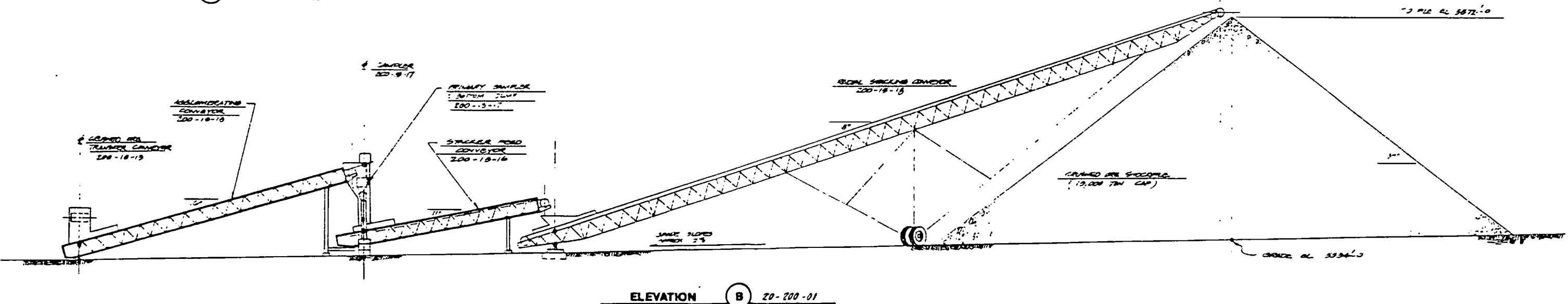
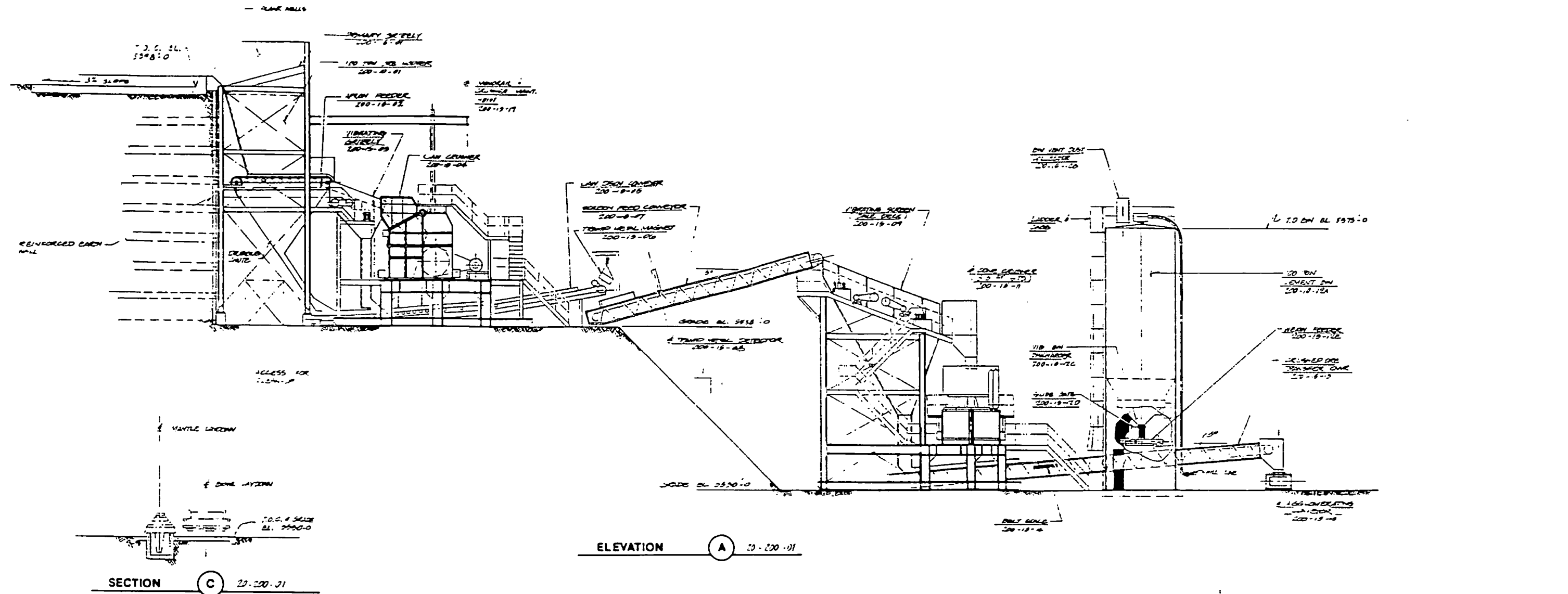


PLAN- CRUSHING, SCREENING & CONVEYOR PROFILE



PLAN- CONT.

REFERENCE DRAWINGS		REVISIONS		DATE BY		PRINT RECORD		ENG. RECORD		DRAWING STATUS		BROHM MINING CORPORATION		GENERAL ARRANGEMENT	
50-200-01	PLAT PLAN & GRAVITY	NO		DATE	BY	DATE	BY	DATE	BY	DATE	BY	GILT EDGE PROJECT		CRUSHING AREA	
50-100-02	SITE PLAN											DEADWOOD, SOUTH DAKOTA		PLANS	
50-200-03	CRUSHING AREA - ELEVATIONS											BATEMAN ENGINEERS INC.		20-200-01	
												777 SOUTH WASHINGTON, SULLY, MINN.		1/8" = 1'-0"	
												29 W. 10TH AVE. S. SULLY, MINN.		1" = 2'	
												J-8748		0	



THIS DRAWING IS THE PROPERTY OF - BATEMAN ENGINEERS INC. It is loaned to you for your use only, and may not be copied or used in any way without the written consent of BATEMAN ENGINEERS INC. The design and construction of the equipment shown on this drawing are the responsibility of BATEMAN ENGINEERS INC.

REFERENCE DRAWINGS	NO.
20-200-01	1
20-200-02	1
20-200-03	1
20-200-04	1
20-200-05	1
20-200-06	1
20-200-07	1
20-200-08	1
20-200-09	1
20-200-10	1
20-200-11	1
20-200-12	1
20-200-13	1
20-200-14	1
20-200-15	1
20-200-16	1
20-200-17	1
20-200-18	1
20-200-19	1
20-200-20	1
20-200-21	1
20-200-22	1
20-200-23	1
20-200-24	1
20-200-25	1
20-200-26	1
20-200-27	1
20-200-28	1
20-200-29	1
20-200-30	1
20-200-31	1
20-200-32	1
20-200-33	1
20-200-34	1
20-200-35	1
20-200-36	1
20-200-37	1
20-200-38	1
20-200-39	1
20-200-40	1
20-200-41	1
20-200-42	1
20-200-43	1
20-200-44	1
20-200-45	1
20-200-46	1
20-200-47	1
20-200-48	1
20-200-49	1
20-200-50	1
20-200-51	1
20-200-52	1
20-200-53	1
20-200-54	1
20-200-55	1
20-200-56	1
20-200-57	1
20-200-58	1
20-200-59	1
20-200-60	1
20-200-61	1
20-200-62	1
20-200-63	1
20-200-64	1
20-200-65	1
20-200-66	1
20-200-67	1
20-200-68	1
20-200-69	1
20-200-70	1
20-200-71	1
20-200-72	1
20-200-73	1
20-200-74	1
20-200-75	1
20-200-76	1
20-200-77	1
20-200-78	1
20-200-79	1
20-200-80	1
20-200-81	1
20-200-82	1
20-200-83	1
20-200-84	1
20-200-85	1
20-200-86	1
20-200-87	1
20-200-88	1
20-200-89	1
20-200-90	1
20-200-91	1
20-200-92	1
20-200-93	1
20-200-94	1
20-200-95	1
20-200-96	1
20-200-97	1
20-200-98	1
20-200-99	1
20-200-100	1

REVISIONS	DATE	BY	CHKD	APPD
1. ISSUED FOR 3-D FOR REINFORCED CEMENT WALL	1/1/78	W. J. W.		
2. ISSUED FOR APPROVAL	1/1/78	W. J. W.		
3. ISSUED FOR CONSTRUCTION	1/1/78	W. J. W.		

PRINT RECORD	DATE	BY	CHKD	APPD
1. ISSUED FOR 3-D FOR REINFORCED CEMENT WALL	1/1/78	W. J. W.		
2. ISSUED FOR APPROVAL	1/1/78	W. J. W.		
3. ISSUED FOR CONSTRUCTION	1/1/78	W. J. W.		

ENG. RECORD	DATE	BY	CHKD	APPD
1. ISSUED FOR 3-D FOR REINFORCED CEMENT WALL	1/1/78	W. J. W.		
2. ISSUED FOR APPROVAL	1/1/78	W. J. W.		
3. ISSUED FOR CONSTRUCTION	1/1/78	W. J. W.		

DRAWING STATUS	DATE	BY	CHKD	APPD
1. ISSUED FOR 3-D FOR REINFORCED CEMENT WALL	1/1/78	W. J. W.		
2. ISSUED FOR APPROVAL	1/1/78	W. J. W.		
3. ISSUED FOR CONSTRUCTION	1/1/78	W. J. W.		

BROHM MINING CORPORATION GILT EDGE PROJECT DEADWOOD, SOUTH DAKOTA		GENERAL ARRANGEMENT CRUSHING AREA SECTIONS	
BATEMAN ENGINEERS INC. 777 SOUTH WASHINGTON BOULEVARD LAKEWOOD, COLORADO, 80226		20-200-02 2 of 2	

060195
Crusher HEAD
Screen Size

1500m
6/2 1/2 hr 10.8'
PH ~~9.60~~ 9.60
6/5 0730

wet wt. 10061g
tare: 479g
9582g

dry wt. 9457
tare: 458
8999g

% moisture: 6.08

	wt. w/tare	tare	wt. g.	%	% passing
1/2"	—	234	—	0	100.00
1"	388		154	1.71	98.29
3/4"	870		636	7.07	91.22
1/2"	2046		1812	20.14	71.08
3/8"	1274		1040	11.56	59.52
1/4"	1535		1301	14.46	45.06
-1/4"	4396	334	4042	44.92	

8985g 99.86

1/2" + above
28.92%

R-f-m.

<u>ITEM</u>	<u>COST</u>	<u>APPROXIMATE DELIVERY TIME</u>
Oscillatory and Stationary Jaw Plates	\$17,277	15 weeks
Concave Filler Block and Bowl & Mantle for Cone	14,024	12 weeks
Lime Feed Drive	1,200	15 weeks
Screens	17,494	8 weeks
Motor Starters	3,800	8 weeks

Prices do not include tax and shipping.

cc: Jim Thompson

corresp\crsher.rjm

MEMORANDUM

TO: Martin Quick
FROM: Rod MacLeod
DATE: November 23, 1994
RE: Pricing - Crusher Rehab

At this time, the key items that will affect the start-up of crushing, if they are not ordered, would be cone crusher parts and possibly the lime feeder drive. The other key consideration is the time necessary to complete the work required. Troy is still working on additional screening and conveying costs.

The following is a summary of items, cost and lead times for crusher parts:

<u>ITEM:</u>	<u>COST</u>	<u>LEAD TIME</u>
*Oscillatory Jaw		
Upper & Lower plates (L98)	\$6,498	15 weeks
Wedge Center (L98)	1,827	From Receipt of Order
 *Stationary Jaw		
Upper & Lower	\$7,400	Del. Prepaid;
Wedge Center	<u>1,552</u>	Freight @ \$10/100
 SUBTOTAL Jaw Crusher (excluding tax & freight)		
	\$17,277	

*NOTE: We can limp along initially by hard facing the jaw plates.

	<u>COST</u>	<u>LEAD TIME</u>
<u>AC 600 Cone Crusher</u>		
Concave Filler Block (600 HYD; 111 lbs)	\$517	12 weeks
Concave Ring (5,560 lbs)	7,816	*current stock
Mantle (3,760 lbs)	5,691	*current stock

F.O.B. shipping point; freight collect

SUBTOTAL Cone crusher subtotal (excluding tax and freight)

\$14,024

* If out of stock when ordered, 12 weeks lead time required. Therefore, need to coordinate order with filler block.

Screens

5 Upper Deck	\$10,975	Stock Items
5 Lower Deck	5,019	" "
1 Seco Punch Plate	<u>1,500</u>	" "
SUBTOTAL (excluding Tax & Freight)	\$17,494	

Conveyor Belt

275' X 36"	2,873.75	Stock Items
109' X 36"	1,139.05	" "
105' X 36"	1,097.25	" "
149' X 36"	1,557.05	" "
188' X 48"	<u>3,468.60</u>	" "
SUBTOTAL (excluding Tax & Freight)	\$10,135.70	

V-Belts

SUBTOTAL 53 belts (excl. Tax & Freight)

\$2,437.56

Stock Item

Miscellaneous

10 Apron Pans	\$3,100.00	Stock Item
9 Wearalloy Plates	504.00	" "
4 Seco Oil Seals	109.28	" "
1 Accumulator Bladder 10 Gal	510.66	" "
1 Accumulator Bladder 5 Gal	245.00	" "
12 Cone Lube Oil Filter	768.00	" "
100 Cans Nord Backing	3,500.00	" "
2 Spider Seals	370.00	" "
1 Scraper	136.00	" "
1 U-Seal	72.00	" "
2 HWI Flexco	30.00	" "

	<u>COST</u>	<u>LEAD TIME</u>
2 HBI Flexco	30.00	" "
4 Flexco Clips	376.00	" "
4 Seco Bearings	4,016.00	" "
Arbars	204.60	" "
10 Return Idlers	929.55	" "
8 Steel	<u>2,000.00</u>	" "
SUBTOTAL (excluding tax & freight)	<u>\$16,901.09</u>	
TOTAL Mechanical	<u>\$78,269.35</u>	

Electrical

Lime Feed Drive	\$1,200	15 Weeks
Motor Starters	5,800	8 Weeks
PLC I/O for Conveyor Motors	4,250	3 Weeks
Contract Programming (est. 120 hrs)	<u>6,000</u>	3 Weeks
SUBTOTAL (excluding tax & freight)	\$18,750	

~~1,500 cable~~
- 5000 Additional

ITEM

Contract Electric Labor (Contractor Est.)	<u>30,000</u>
SUBTOTAL	\$48,750

Move Regulator Bank	\$12,000	12 Weeks
----------------------	-----------	----------

TOTAL Electric	<u>\$60,750</u>
-----------------------	------------------------

*Recoupable Over 5 Year Period; work done and scheduling by BH Power

RM:sm

134019.35

cc: T. Fierro
S. Gross
J. Thompson
K. VanBuren

12k Recoupable

corresp\crshrehb.rjm

MEMORANDUM

TO: Martin Quick
FROM: Rod MacLeod
DATE: October 31, 1994
RE: AFE - Crusher Rehabilitation

INTRODUCTION

As the oxide project came to a close in 1992, maintenance of the Gilt Edge crushing facility was kept to a minimum. At this point in time, plans are being made to immediately begin processing approximately 700,000 tons of stockpiled sulphide ore immediately followed by crushing Anchor Hill oxide ore in August 1995. Scheduled production rates and crushed product size require that the Gilt Edge crusher undergo full maintenance so production goals can be achieved.

It is estimated that parts and equipment procurement, installation and repairs will demand at least 12 weeks before crushing can commence. It is, therefore, imperative that we begin crusher maintenance immediately if the current goals of the production plan are to be achieved.

CURRENT SITUATION

The following is an itemized list of items requiring replacement, repair or maintenance:

Mechanical (crusher)

General:

- All drive belts (replace).
- Repair/replace oil heater in lube pump tank under cone (*check*).

Hopper:

- Repair grizzlies and mounts.

Apron Feeder:

- Repair apron pans, replace skid plate.
- Build up side plates on hopper (needs replacement).
- Rebuild slat conveyor.
- Redo screen on scalper, hard plate sides and end chute.

Jaw:

- Replace jaw plates.
- Reface fines chute under scalper.
- Repair flywheel and shaft - currently shimmed, but still wobbling *(check and repair if necessary)*.
- Check mains and bearings for water damage.

Conveyors:

- Repair/replace primary and secondary belt scrapers, tubes and air bags on conveyors.
- Bottom 4 belts need replacement.
- Repair/replace impact return rollers.
- Check upper belts.

Seco:

- Replace upper and lower deck screens in Seco.
- Rechute Seco for clay.
- Replace Seco main bearings.

Cone:

- Inspect/replace bowl and mantle on cone.
- Inspect/replace eccentric and spiders on cone.
- Inspect fans and bladders.
- Replace rollers and repair scoop on sampler.

Electrical

Control Wiring:

- Needs checking and change some connections.

External Wiring:

- Needs checking and replacement where worn and damaged by water.
- Approximately 150 external cables. Most are input/output cables to start, stop, alignment and zero speed switches.
- All switches will need to be checked and replaced as needed.
- All motor feeds will need checking and replace if shorted or bad.

Motors:

- Resistance check to ground on all motor windings.
- Run without load to check bearings and replace if bad.

Additional Screening and Conveyors:

- Installation of control wiring, motor feeds and switch gear.

Operational Prep.:

- An estimate of 120 hours (estimated by outside electrical consultant) is required to configure software with crushing circuit.

COST ESTIMATE

Mechanical

Parts and Supplies	\$80,000
Temporary Labor (3 people)	5,000
Mobile Crane	9,200

Electrical

Parts and Supplies	30,000
Contract Labor	30,000

Move Regulator Bank (BHP&L - Recoupable over 5 years) 12,000

Weightometer (includes steel and concrete) 7,000

***Additional Screening & Conveying (2 screen decks and conveyors)** 175,000

Contingency (10% on parts and supplies only) 29,200

TOTAL \$377,400

* Estimate based on literature review; add on for sulphides only.

RM:sm

cc: J.T.
file

misc\crushreh.afe

AUTHORITY FOR EXPENDITURE

PROJECT: Crusher Rehabilitation	AFE NUMBER:						
LOCATION: Gilt Edge Mine, Deadwood, SD	PAGE <u>1</u> OF <u>1</u>						
DATE: October 31, 1994	AFE AMOUNT: \$377,400						
TYPE OF EXPENDITURE: <table><tr><td><input checked="" type="checkbox"/> DISCRETIONARY</td><td><input checked="" type="checkbox"/> MAINTENANCE</td></tr><tr><td><input type="checkbox"/> SAFETY</td><td><input type="checkbox"/> REGULATORY</td></tr><tr><td><input type="checkbox"/> PRODUCT QUALITY</td><td></td></tr></table>		<input checked="" type="checkbox"/> DISCRETIONARY	<input checked="" type="checkbox"/> MAINTENANCE	<input type="checkbox"/> SAFETY	<input type="checkbox"/> REGULATORY	<input type="checkbox"/> PRODUCT QUALITY	
<input checked="" type="checkbox"/> DISCRETIONARY	<input checked="" type="checkbox"/> MAINTENANCE						
<input type="checkbox"/> SAFETY	<input type="checkbox"/> REGULATORY						
<input type="checkbox"/> PRODUCT QUALITY							
EXPENDITURE DESCRIPTION: See attached.							
REASON: See attached.							
ANTICIPATED RESULTS: See attached.							
PREPARED BY: Roderick J. MacLeod	DATE: October 31, 1994						
APPROVED BY:	DATE:						
APPROVED BY:	DATE:						
APPROVED BY:	DATE:						
APPROVED BY:	DATE:						

Miscellaneous

10 - Apron pans with AR Bars	310 ⁰⁰ ea	3100 ⁰⁰
9 - 6" x 30" x 3/4" wearalloy plates	56 ⁰⁰ ea	504 ⁰⁰
4 - Seco oil seals	27 ³² ea	109 ²⁸
1 - 10gal Bladder for accumulator		510 ⁶⁶
1 - 5gal Bladder for accumulator		245 ⁰⁰
12 - Cone tube oil filters	64 ⁰⁰ ea	768 ⁰⁰
100 - Cans Nord backing	35 ⁰⁰ ea	3500 ⁰⁰
2 - Spider Seals	185 ⁰⁰ ea	370 ⁰⁰
1 - Scraper	136 ⁰⁰ ea	136 ⁰⁰
1 - V Seal	72 ⁰⁰ ea	72 ⁰⁰
2 - HWT Flexco	15 ⁰⁰ ea	30 ⁰⁰
2 - HBI Flexco	15 ⁰⁰ ea	30 ⁰⁰
4 - 140C Flexco clips	94 ⁰⁰ ea	376 ⁰⁰
4 - Seco Bearings	1004 ⁰⁰ ea	4016 ⁰⁰
3411bs - 1" x 2" x 8' 360 AR Bars	\$60/lb	204 ⁶⁰
5 - DL-R-36GR Return idlers	85 ¹⁵ ea	425 ⁷⁵
5 - DL-R-48GR Return idlers	100 ⁷⁶ ea	503 ⁸⁵

Restock steel rack

2000⁰⁰

16901⁰⁹

Screens

Rubber

* 5	upper deck	10975 ⁰⁰
* 5	lower deck	5019 ⁰⁰

Steel screens

5	upper deck	3910 ⁰⁰
5	lower deck	524 ⁰⁰

Seco

* 1	Punch Plate	1500 ⁰⁰
-----	-------------	--------------------

Boston Conveyor Belt Reel Industrial supply

36" wide	275' long	2ply 3/16" x 1/16"	#10.45 Ft	2873 ⁷⁵
36" wide	109' long	2ply 3/16" x 1/16"	#10.45 Ft	1139 ⁰⁵
36" wide	105' long	2ply 3/16" x 1/16"	#10.45 Ft	1097 ²⁵
36" wide	149' long	2ply 3/16" x 1/16"	#10.45 Ft	1557 ⁰⁵
48" wide	188' long	3ply 1/4" x 1/16"	#18.45 Ft	3468 ⁶⁰
				<u>10135⁷⁰</u>

Goodyear V-Belts Whisler Bearing Co.

10	B-1320	51.13 Ea	511 ³⁰
8	B-3750	154.12 Ea	1232 ⁹⁶
6	B-112	9.89 Ea	59 ³⁴
10	B-105	9.23 Ea	92 ³⁰
7	C-112	18.45 Ea	129 ¹⁵
5	C-105	9.23 Ea	46 ¹⁵
6	B-94	8.40 Ea	50 ⁴⁰
1	259014M115 Timing	315.96 Ea	315 ⁹⁶
			<u>2437.56</u>

Bowl & Mantle

Allis mineral systems

Item

- | | | | |
|---|---|---------------------------------------|--------------------|
| 1 | 1 | Concave ring 2ARM CLP 5600 HYD | |
| | | new style 55600 lbs | 7816 ⁰⁰ |
| 2 | 1 | Mantle CLP 6000 HYD 37600 lbs | 5691 ⁰⁰ |
| 3 | 1 | Concave filler block 6000 HYD 111 lbs | 517 ⁰⁰ |

Stock subject to prior sale, Item 3
approx. 12 weeks

Delivery Terms FOB shipping point freight collect

14024⁰⁰

Jaw Plates

2	Mov	Jaw upper & lower L98	3849 ⁰⁰ EA	6498 ⁰⁰
1	Mov	Wedge center L98	1827 ⁰⁰ EA	1827 ⁰⁰
2	STA	Jaw upper & lower w/sme	3700 ⁰⁰ EA	7400 ⁰⁰
1	STA	Wedge center L98	1552 ⁰⁰ EA	1552 ⁰⁰

Can ship within 105 days from Receipt of
Order

Delivery Terms P/P & Charge Freight 10⁰⁰/c

17277⁰⁰

11-21-94

ESTIMATE FOR CRUSHER RENAB AND START-UP.
INCLUDES MOTOR CONTROLS AND WIRING FOR NEW
SCREEN DECK AND 4 NEW CONVEYORS.

Item	COST	LEAD TIME
BELT SCALE	\$7960 -	5 WKS
LIME FEED DRIVE	\$1200 -	15 WKS
MOTOR STARTERS	\$5800 -	8 WKS
CABLE TO CONNECT MOTORS	\$1500 -	3 WKS
PLC I/O FOR NEW MOTORS	\$4250	3 WKS
CONTRACT PROGRAMING	\$6,000 -	
CONTRACT RENAB LABOR	\$30,000 -	
TOTAL	<hr/> \$56,710 -	

BLACK HILLS POWER & LIGHT REGULATOR MOVE -
\$12,000 APPROX. - RECOUP OVER 5 YRS

TOTAL \$68,710

January 8, 1995

CRUSHER REHAB, ELECTRICAL

LIME FEEDER

AC drive ordered 29 Dec 94. Scheduled Delivery 12 April 95. Install 13-19 April 95. Complete 19 April 95.

MOTOR CONTROL CENTER AND MOTOR REPAIRS

Start cable and motor checks 9 January 95. Contract labor with Baumgartner Electric. Estimated time 4 weeks. Complete 6 Feb 95. Must be completed to run conveyors for clean up.

PLC I/O WIRING AND CHECK OUT.

Start PLC wiring and check out 9 January 95. Contract labor with Baumgartner Electric. Estimated time 4 weeks. Complete 6 Feb 95. Must be completed to run conveyors for clean up.

PLC AND PANEL VIEW PROGRAMING.

Start PLC and Panel View programing 9 January 95. Estimated time 3 weeks. Must be completed and checked out prior to running and crusher equipment for maintenance or clean up.

WEIGHTOMETER

? NEED → Recovery + Billings

Order weightometer 6 Feb 95. Delivery approx. 6 weeks. Installation time 1 week. Contract labor with Baumgartner Electric.

CURRENT ESTIMATED MATERIAL COSTS:

LIME FEEDER,	\$1,200.00
MCC & MOTOR REPAIRS	\$4,800.00
PLC I/O WIRING	\$4,500.00
PLC & PANEL VIEW	\$6,000.00
WEIGHTOMETER	\$8,000.00
CABLE AND WIRE	\$1,500.00

CURRENT ESTIMATED LABOR COST:

BAUMGARTNER ELECTRIC \$25,000.00

ESTIMATED TOTAL COST: \$51,000.00

Material for motor control center and control system must be order by 9 January 95 to meet April 3 start up. Lime feeder drive unit was ordered 29 December 94. Program work and repair work must be started by 9 January to run conveyors by 6 February 95 for clean up prior to mechanical repairs on system. Weightometer should be ordered by 6 Feb to allow installation time and check out prior to crushing.

Does
NOT
WANT
TO DO.

4 weeks - WOULD LIKE
DONE BY 2/6

TO: JIM THOMPSON

Pg 1

FROM: STEVE GROSS

DECEMBER 1994

27TH

ORDER

- 1 - moveable wedge center
- 1 - moveable upper and lower jaw plate
- 1 - stationary wedge center
- 1 - stationary upper and lower with smooth end jaw plates
- 1 - concave ring 2arm 5600 HYD
- 1 - mantle 600 HYD
- 1 - concave filler block 600 HYD

WANTS TO TURN STEVE LOOSE ON

✓
JANUARY 1995

2ND - 6TH

WORK TO BE STARTED

- clean up steel rack
- clean trailer
- install air compressor in trailer

70W
1 MAN

9TH - 13TH

2 MEN

WORK TO BE STARTED

- clean shop and take inventory on parts, tools, and oil
- move propane tank
- install latrine
- send in scraper blades to be rebuilt

16TH - 20TH

Pg 2

2 MEN

ORDER

- 18th*
↓
- upper and lower seco screens

WORK TO BE STARTED

- repair grizzly bars; weld cracks and fish plate sides
 - rebuild grizzly bar mounts; front and back
 - hard face side plates above the apron feeder
 - repair side panels above 100 ton hopper
-

23RD - 27TH

3 MEN / CRANE TIME

WORK TO BE STARTED

- install grizzly bars
 - remove jaw plates
 - remove punch plate and weld frame
 - remove screens; upper and lower deck
 - remove primary and secondary scrapers
 - repair air bags
-

FEBRUARY 1995

JAN 30TH - FEB 3RD

3 MEN

ORDER

- apron pans for feeder
- mild steel and AR plate
- 360 AR bars for punch plate
- seco oil seals and sleeves

WORK TO BE STARTED

- check seco and scalper bearings for play
- clean seco chute
- repair seco skid bars
- install rubber belting around tubes in seco and scalper

6TH - 10TH

Pg 3
3 MEN

ORDER

- wearalloy plates for slide to jaw crusher
- flexco clips
- V-belts and sheaves

WORK TO BE STARTED

- remove oil from all gear boxes
 - check wear in bearings and lip seals on all gear boxes
 - check return idlers and impact rollers for bad bearings and thin walled cans
 - replace bad apron pans
 - install a new skid plate under apron pans
 - install propane torches under apron feeder
-

13TH -17TH

5 MEN

ORDER

- conveyor belts for stacker; stacker feed conveyor belt and slat conveyor belt
- timing belt for seco
- scrapers
- 10 gal. bladder

WORK TO BE STARTED

- install sheaves and V-belts on jaw, cone, and conveyors
 - repair rock boxes
 - install screens; upper and lower deck seco
 - install new accumulator bladders; 10 and 5 gal.
 - rebuild slat conveyor
 - repair stacker drive
-

20TH - 24TH

5 MEN / CRANE TIME

ORDER

- spider seals for cone
- scraper ring for cone
- V seal for cone
- cone lube oil filter
- cone discharge conveyor belt
- agglomerating conveyor belt
- impact and idler rollers
- seco bearings

20TH - 24TH

WORK TO BE STARTED

- clean lime filter housing and install new filters
 - remove old scale and install new scale
 - install stacker conveyor belt
 - install stacker feed conveyor belt
 - install return line from cone lube
-

MARCH 1995

FEB 27TH - MAR 3RD

ORDER

- seco bearings
- primary scrapers

WORK TO BE STARTED

- install impact and idler rollers
 - install seco bearings
 - install timing belt
 - install cone discharge conveyor belt
 - install agglomerating conveyor belt
-

6TH - 10TH

5 MEN

WORK TO BE STARTED

- install primary and secondary scrapers
- install skirt rubber on all conveyors
- pull toggle plate and check squareness and toggle seat for wear
- repair rock boxes
- install upper and lower deck seco screens

13TH - 17TH

5 MEN / CRANE TIME

ORDER

- 100 cans backing

WORK TO BE STARTED

- remove bowl and mantle
 - have Fisher come out and dial in the main shaft
 - install AR bars on seco discharge
 - install slate conveyor belt
-

20TH - 24TH

8 MEN / CRANE TIME

WORK TO BE STARTED

- repair water lines
 - install seco and scalper dampers
 - install bowl and mantle
 - work on sampler
 - rebuild front plate slide into scalper
-

APRIL 1995

MAR 27TH - APR 3RD

8 MEN

ORDER

- lime

WORK TO BE STARTED

- install jaw plates and wedges
- install rubber belting on scalper sides
- check pressures on cone
- get ready for start up; show operators and helpers what to do

IF READY LET EACH OPERATOR RUN THE CRUSHER

CRUSHER REHAB

dec 15th 27th Jan 15th Feb 15th Mar 15th April 30th 15th

ORDER CONE, JAW, Filler Block, AC DRIVE
 CLEAN STEEL RACK, CLEAN TRAILER, INSTALL AIR COMPRESSOR
 CLEAN SHOP, TAKE INVENTORY ON PARTS TOOLS OIL, MOVE PROPANE TANK, INSTALL LATRINE, SEND IN SCRAPER BLADES TO BE REBUILT
 START CABLE AND MOTOR CHECKS, CONTRACT LABOR WITH BAUMGARTNER ELECTRIC.
 START PLC WIRING AND CHECK. CONTRACT LABOR WITH BAUMGARTNER ELECTRIC.
 START PLC AND PANEL VIEW PROGRAMING
 ORDER SCREENS, REPAIR GRIZZLY BARS, REBUILD GRIZZLY BAR MOUNTS, HARD FACE SIDE PLATES ABOVE APRON FEEDER, REPAIR SIDE PANELS ABOVE 100 TON HOPPER.
 INSTALL GRIZZLY BARS, REMOVE JAW PLATES, REMOVE PUNCH PLATE AND WELD FRAME, REMOVE SCREENS, REMOVE PRIMARY AND SECONDARY SCRAPERS, REPAIR AIR BAGS.
 ORDER APRON PANS, ORDER MILD STEEL AND AR PLATE 360 AR BARS FOR PUNCH PLATE, ORDER SECO OIL SEALS AND SLEEVES.
 ORDER WEIGHTOMETER, WEARALLOY PLATES FOR SLIDE TO JAW CRUSHER, FLEXCO CLIPS, V-BELTS AND SHEAVES, REMOVE OIL FROM ALL GEAR BOXES, CHECK WEAR IN BEARING AND LIP SEALS ON ALL GEAR BOXES
 CHECK RETURN IDLERS AND IMPACT ROLLERS FOR BAD BEARING AND THIN WALLED CANS, REPLACE BAD APRON PANS, INSTALL A NEW SKID PLATE UNDER APRON PANS,
 ORDER CONVEYOR BELTS, ORDER TIMING BELT FOR SECO, ORDER SCRAPERS, ORDER 10 GAL. BLADDER.
 INSTALL SHEAVES AND V-BELT ON JAW, CONE, AND CONVEYORS. REPAIR ROCK BOXES, INSTALL SCREENS
 INSTALL NEW ACCUMULATOR BLADDERS, REBUILD SIAT CONVEYOR, REPAIR STACKER DRIVE.

1 week

4 weeks

4 weeks

3 weeks

Complete so power available to circuit when trying to complete balance of Rehab.

1 week

1 week

1 week

1 week

1 week
 Feb 13-17

CRUSHER REHAB

DEC

15TH

JAN

15TH

FEB

15TH

MAR

15TH

APRIL

15TH

ORDER SPIDER SEALS FOR CONE, ORDER SCRAPER RING FOR CONE, V SEAL FOR CONE, ORDER CONE LUBE OIL FILTER, ORDER CONE DISCHARGE CONVEYOR BELT, AGGLOMERATING CONVEYOR BELT, ORDER IMPACT AND IDLER ROLLERS ORDER SECO BEARINGS, CLEAN LIME FILTER HOUSING AND INSTALL NEW FILTERS, REMOVE OLD SCALE AND INSTALL NEW SCALE, INSTALL STACKER AND STACKED FEED CONVEYOR BELTS, INSTALL RETURN LINE FROM CONE LUBE

ORDER SECO BEARINGS, ORDER PRIMARY SCRAPERS, INSTALL IMPACT AND IDLER ROLLERS, INSTALL SECO BEARING INSTALL TIMING BELTS, INSTALL CONE DISCHARGE CONVEYOR BELT, INSTALL AGGLOMERATING CONVEYOR BELT.

INSTALL PRIMARY AND SECONDARY SCRAPERS, INSTALL SKIRT RUBBER ON ALL CONVEYORS, PULL TOGGLE PLATE AND CHECK SQUARENESS AND TOGGLE SEAT FOR WEAR, REPAIR ROCK BOXES, INSTALL UPPER AND LOWER DECK SECO SCREENS.

ORDER 100 CANS BACKING REMOVE BOWL AND MANTLE HAVE FISHER COME OUT AND DIAL IN THE MAIN SHAFT, INSTALL AIR BARS ON SECO DISCHARGE, INSTALL SLATE CONVEYOR BELT,

REPAIR WATER LINES, INSTALL SECO AND SCALPER DAMPERS INSTALL BOWL AND MANTLE, WORK ON SAMPLER, REBUILD FRONT PLATE SLIDE INTO SCALPER.

ORDER LIME, INSTALL JAW PLATES AND WEDGES INSTALL RUBBER BELTING ON SCALPER SIDES CHECK PRESSURES ON CONE, GET READY FOR START UP, SHOW OPERATORS AND HELPERS WHAT TO DO, IF READY LET EACH OPERATORS RUN CRUSHER.

RUN

1 week

1 week

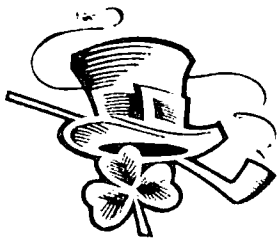
1 week

1 week

1 week

1 week

FOR SAFETY REASONS AT LEAST 2 PEOPLE SHOULD BE WORKING TOGETHER



Martin

wed - 7:15 p

Bullock

car

rtm 4:30 p

Thurs.



Compliments of
Ameri Copy Printing Centers

1616 Glenarm Pl. * 623-5980

1730 Champa * 293-9083

1700 Broadway * 860-1962

320 E.17th Avenue * 832-0824

FREE PICK-UP AND DELIVERY IN THE DOWNTOWN AREA

ARD PROJECT SCHEDULE
GILT EDGE MINE
BROHM MINING CORP
FEB 3, 1965

[illegible]

TOTAL P.01
P.001

6055781709

FEB-03-1995 14:13

Post-It™ brand fax transmittal memo 7671		# of pages ▶	1
To	ROB G.	From	TRAY F
Co.	Dakota	Co.	Bizethm
Dept.		Phone #	
Fax #		Fax #	

TO: JIM THOMPSON

Pg 1

FROM: STEVE GROSS

DECEMBER 1994

27TH

ORDER

- 1 - moveable wedge center
 - 1 - moveable upper and lower jaw plate
 - 1 - stationary wedge center
 - 1 - stationary upper and lower with smooth end jaw plates
 - 1 - concave ring 2arm 5600 HYD
 - 1 - mantle 600 HYD
 - 1 - concave filler block 600 HYD
-

JANUARY 1995

2ND - 6TH

1 MAN

WORK TO BE STARTED

- clean up steel rack
 - clean trailer
 - install air compressor in trailer
-

9TH - 13TH

2 MEN

WORK TO BE STARTED

- clean shop and take inventory on parts, tools, and oil
- move propane tank
- install latrine
- send in scraper blades to be rebuilt

16TH - 20TH

Pg 2
2 MEN

ORDER

- upper and lower seco screens

WORK ONLY

WORK TO BE STARTED

- repair grizzly bars; weld cracks and fish plate sides
 - rebuild grizzly bar mounts; front and back
 - hard face side plates above the apron feeder
 - repair side panels above 100 ton hopper
-

23RD - 27TH

3 MEN / CRANE TIME

WORK TO BE STARTED

- install grizzly bars
 - remove jaw plates
 - remove punch plate and weld frame
 - remove screens; upper and lower deck
 - remove primary and secondary scrapers
 - repair air bags
-

WORK ONLY.

FEBRUARY 1995

JAN 30TH - FEB 3RD

3 MEN

ORDER

- apron pans for feeder
- mild steel and AR plate
- 360 AR bars for punch plate
- seco oil seals and sleeves

WORK TO BE STARTED

- check seco and scalper bearings for play
- clean seco chute
- repair seco skid bars
- install rubber belting around tubes in seco and scalper

6TH - 10TH

Pg 3
3 MEN

ORDER

- wearalloy plates for slide to jaw crusher
- flexco clips
- V-belts and sheaves

WORK TO BE STARTED

- remove oil from all gear boxes
 - check wear in bearings and lip seals on all gear boxes
 - check return idlers and impact rollers for bad bearings and thin walled cans
 - replace bad apron pans
 - install a new skid plate under apron pans
 - install propane torches under apron feeder
-

13TH -17TH

5 MEN

ORDER

- conveyor belts for stacker; stacker feed conveyor belt and slat conveyor belt
- timing belt for seco
- scrapers
- 10 gal. bladder

WORK TO BE STARTED

- install sheaves and V-belts on jaw, cone, and conveyors
 - repair rock boxes
 - install screens; upper and lower deck seco
 - install new accumulator bladders; 10 and 5 gal.
 - rebuild slat conveyor
 - repair stacker drive
-

20TH - 24TH

5 MEN / CRANE TIME

ORDER

- spider seals for cone
- scraper ring for cone
- V seal for cone
- cone lube oil filter
- cone discharge conveyor belt
- agglomerating conveyor belt
- impact and idler rollers
- seco bearings

20TH - 24TH

WORK TO BE STARTED

- clean lime filter housing and install new filters
 - remove old scale and install new scale
 - install stacker conveyor belt
 - install stacker feed conveyor belt
 - install return line from cone lube
-

MARCH 1995

FEB 27TH - MAR 3RD

ORDER

- seco bearings
- primary scrapers

WORK TO BE STARTED

- install impact and idler rollers
 - install seco bearings
 - install timing belt
 - install cone discharge conveyor belt
 - install agglomerating conveyor belt
-

6TH - 10TH

5 MEN

WORK TO BE STARTED

- install primary and secondary scrapers
- install skirt rubber on all conveyors
- pull toggle plate and check squareness and toggle seat for wear
- repair rock boxes
- install upper and lower deck seco screens

13TH - 17TH**5 MEN / CRANE TIME****ORDER**

- 100 cans backing

WORK TO BE STARTED

- remove bowl and mantle
 - have Fisher come out and dial in the main shaft
 - install AR bars on seco discharge
 - install slate conveyor belt
-

20TH - 24TH**8 MEN / CRANE TIME****WORK TO BE STARTED**

- repair water lines
 - install seco and scalper dampers
 - install bowl and mantle
 - work on sampler
 - rebuild front plate slide into scalper
-

APRIL 1995**MAR 27TH - APR 3RD****8 MEN****ORDER**

- lime

WORK TO BE STARTED

- install jaw plates and wedges
- install rubber belting on scalper sides
- check pressures on cone
- get ready for start up; show operators and helpers what to do

IF READY LET EACH OPERATOR RUN THE CRUSHER

January 8, 1995

CRUSHER REHAB, ELECTRICAL

LIME FEEDER

AC drive ordered 29 Dec 94. Scheduled Delivery 12 April 95. Install 13-19 April 95. Complete 19 April 95.

MOTOR CONTROL CENTER AND MOTOR REPAIRS

Start cable and motor checks 9 January 95. Contract labor with Baumgartner Electric. Estimated time 4 weeks. Complete 6 Feb 95. Must be completed to run conveyors for clean up.

PLC I/O WIRING AND CHECK OUT.

Start PLC wiring and check out 9 January 95. Contract labor with Baumgartner Electric. Estimated time 4 weeks. Complete 6 Feb 95. Must be completed to run conveyors for clean up.

PLC AND PANEL VIEW PROGRAMING.

Start PLC and Panel View programing 9 January 95. Estimated time 3 weeks. Must be completed and checked out prior to running and crusher equipment for maintenance or clean up.

WEIGHTOMETER

Order weightometer
time 1 week. Contr

CURRENT ESTIMATED MATERIALS

LIME FEEDER,
MCC & MOTOR REPAIRS
PLC I/O WIRING
PLC & PANEL VIEW
WEIGHTOMETER
CABLE AND WIRE

CURRENT ESTIMATED LABOR

BAUMGARTNER ELECTRIC

MARTIN

IF you CAN EVEN get us 25000
NOW AND THE REST IN MID FEB
we would Be ABle to start.
AND then get the weightometer
IN MARCH.

JT



ESTIMATED TOTAL COST: \$51,000.00 → \$43,000

Material for motor control center and control system must be order by 9 January 95 to meet April 3 start up. Lime feeder drive unit was ordered 29 December 94. Program work and repair work must be started by 9 January to run conveyors by 6 February 95 for clean up prior to mechanical repairs on system. Weightometer should be ordered by 6 Feb to allow installation time and check out prior to crushing.

January 8, 1995

CRUSHER REHAB, ELECTRICAL

LIME FEEDER

AC drive ordered 29 Dec 94. Scheduled Delivery 12 April 95. Install 13-19 April 95. Complete 19 April 95.

MOTOR CONTROL CENTER AND MOTOR REPAIRS

Start cable and motor checks 9 January 95. Contract labor with Baumgartner Electric. Estimated time 4 weeks. Complete 6 Feb 95. Must be completed to run conveyors for clean up.

PLC I/O WIRING AND CHECK OUT.

Start PLC wiring and check out 9 January 95. Contract labor with Baumgartner Electric. Estimated time 4 weeks. Complete 6 Feb 95. Must be completed to run conveyors for clean up.

PLC AND PANEL VIEW PROGRAMING.

Start PLC and Panel View programing 9 January 95. Estimated time 3 weeks. Must be completed and checked out prior to running and crusher equipment for maintenance or clean up.

WEIGHTOMETER

Order weightometer 6 Feb 95. Delivery approx. 6 weeks. Installation time 1 week. Contract labor with Baumgartner Electric.

CURRENT ESTIMATED MATERIAL COSTS:

LIME FEEDER,	\$1,200.00
MCC & MOTOR REPAIRS	\$4,800.00
PLC I/O WIRING	\$4,500.00
PLC & PANEL VIEW	\$6,000.00
WEIGHTOMETER	\$8,000.00
CABLE AND WIRE	\$1,500.00

→ This can wait until sometime March.

CURRENT ESTIMATED LABOR COST:

BAUMGARTNER ELECTRIC \$25,000.00

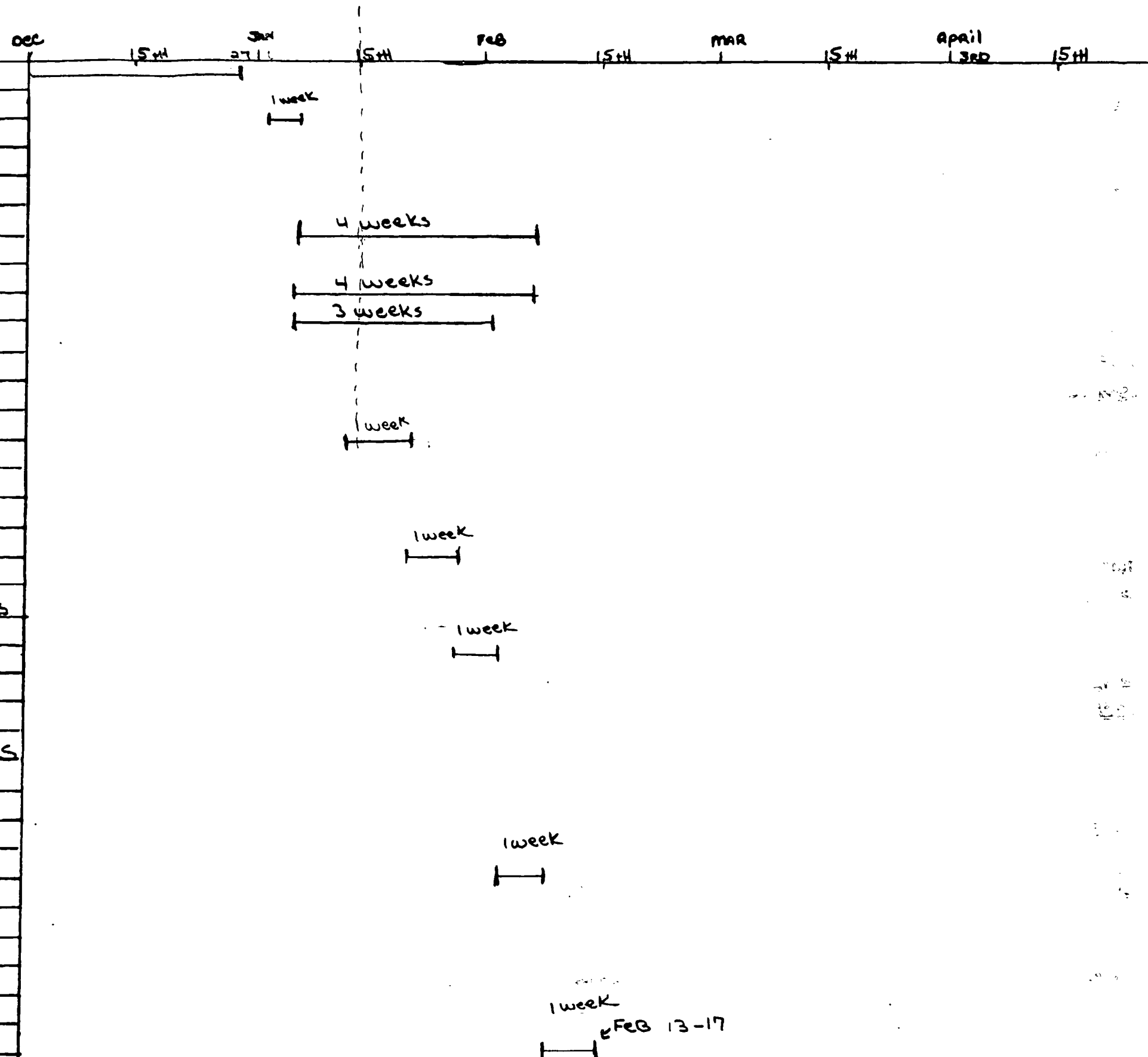
ESTIMATED TOTAL COST: \$51,000.00

→ \$43,000

Material for motor control center and control system must be order by 9 January 95 to meet April 3 start up. Line feeder drive unit was ordered 29 December 94. Program work and repair work must be started by 9 January to run conveyors by 6 February 95 for clean up prior to mechanical repairs on system. Weightometer should be ordered by 6 Feb to allow installation time and check out prior to crushing.

CRUSHER REHAB

ORDER CONE, JAW, FILLER BLOCK, AC DRIVE.
 CLEAN STEEL BACK, CLEAN TRAILER, INSTALL AIR COMPRESSOR
 CLEAN SHOP, TAKE INVENTORY ON PARTS TOOLS OIL, MOVE PROPANE TANK, INSTALL LATRINE, SEND IN SCRAPER BLADES TO BE REBUILT
 START CABLE AND MOTOR CHECKS, CONTRACT LABOR WITH BAUMGARTNER ELECTRIC.
 START PLC WIRING AND CHECK. CONTRACT LABOR WITH BAUMGARTNER ELECTRIC.
 START PLC AND PANEL VIEW PROGRAMING
 ORDER SCREENS, REPAIR GRIZZLY BARS, REBUILD GRIZZLY BAR MOUNTS, HARD FACE SIDE PLATES ABOVE APRON FEEDER, REPAIR SIDE PANELS ABOVE 100 TON HOPPER.
 INSTALL GRIZZLY BARS, REMOVE JAW PLATES, REMOVE PUNCH PLATE AND WELD FRAME, REMOVE SCREENS, REMOVE PRIMARY AND SECONDARY SCRAPERS, REPAIR AIR BAGS.
 ORDER APRON PANS, ORDER MILD STEEL AND AR PLATE 360 AR BARS FOR PUNCH PLATE, ORDER SECO OIL SEALS AND SLEEVES.
 ORDER WEIGHTOMETER, WEARALLOY PLATES FOR SLIDE TO JAW CRUSHER, FLEXCO CLIPS, V-BELTS AND SHEAVES, REMOVE OIL FROM ALL GEAR BOXES, CHECK WEAR IN BEARING AND LIP SEALS ON ALL GEAR BOXES
 CHECK RETURN IDLERS AND IMPACT ROLLERS FOR BAD BEARING AND THIN WALLED CANS, REPLACE BAD APRON PANS, INSTALL A NEW SKID PLATE UNDER APRON PANS,
 ORDER CONVEYOR BELTS, ORDER TIMING BELT FOR SECO, ORDER SCRAPERS, ORDER 10 GAL. BLADDER.
 INSTALL SHEAVES AND V-BELT ON JAW, CONE, AND CONVEYORS, REPAIR ROCK BOXES, INSTALL SCREENS
 INSTALL NEW ACCUMULATOR BLADDERS, REBUILD SIAT CONVEYOR, REPAIR STACKER DRIVE.



CRUSHER RENAB

dec

15th

31st

15th

feb

15th

mar

15th

april

15th

ORDER SPIDER SEALS FOR CONE, ORDER SCRAPER RING FOR CONE, V SEAL FOR CONE, ORDER CONE LUBE OIL FILTER, ORDER CONE DISCHARGE CONVEYOR Belt, agglomerating CONVEYOR Belt, ORDER IMPACT AND IDLER ROLLERS ORDER SECO BEARINGS, CLEAN lime filter HOUSING AND INSTALL NEW FILTERS, REMOVE OLD SCALE AND INSTALL NEW SCALE, INSTALL STACKER AND STACKER FEED CONVEYOR Belts, INSTALL RETURN line from CONE lube

ORDER SECO BEARINGS, ORDER PRIMARY SCRAPERS, INSTALL IMPACT AND IDLER ROLLERS, INSTALL SECO BEARING INSTALL TIMING Belts, INSTALL CONE DISCHARGE CONVEYOR Belt, INSTALL agglomerating CONVEYOR Belt.

INSTALL PRIMARY AND SECONDARY SCRAPERS, INSTALL SKIRT RUBBER ON ALL CONVEYORS, pull toggle PLATE AND CHECK SQUARENESS AND toggle SEAT for wear, REPAIR ROCK BOXES, INSTALL UPPER AND lower DECK SECO SCREENS.

ORDER 100 CANS BACKING Remove Bowl AND MANTLE HAVE FIGHER come out AND Dial IN THE MAIN SHAFT, INSTALL AR BARS ON SECO DISCHARGE, INSTALL SLATE CONVEYOR Belt.

Repair water lines, INSTALL SECO AND SCALPER DAMPERS INSTALL Bowl AND MANTLE, WORK ON SAMPLER, REBUILD FRONT plate slide into SCALPER.

ORDER lime, INSTALL jaw PLATES AND wedges INSTALL RUBBER Belting ON SCALPER SIDES CHECK PRESSURES ON CONE, get READY for START up, SHOW OPERATORS AND HELPERS WHAT TO DO, IF READY Let EACH OPERATORS RUN CRUSHER.

RUN

1 week

1 week

1 week

1 week

1 week

1 week



MEMORANDUM

TO: ROD MACLEOD\JIM THOMPSON

FROM: MARTIN QUICK

DATE: NOVEMBER 7 1994

RE: PRIMARY CRUSHER REFURBISHMENT

The AFE for the crusher rehabilitation has not yet been approved, but you are authorized to proceed with the following work which relates to the primary crusher only. This is :-

1. Ordering the mechanical parts and supplies for the crusher including the new bowl, which you have estimated at \$80,000.

2. Ordering the electrical parts and supplies for the crusher which you have estimated at \$30,000.

Please let me have the firm quotes for these parts and supplies as soon as possible prior to the placement of these orders, so that the overall cost of this project can be properly tracked.

As far as the additional screening and conveying is concerned, would you please proceed with obtaining firm quotes for the purchase and installation of these components, pending approval of the AFE within the next two weeks.

P. 1.

MEMORANDUM

DEC 22 1994

TO: Martin Quirk
FROM: Rod MacLeod R.S.M.
DATE: December 22, 1994
RE: Placement of Orders for Long Lead-time Crusher Parts

The following is a list of parts that we will be ordering for the crusher over the next one to seven weeks:

<u>ITEM</u>	<u>COST</u>	<u>APPROXIMATE DELIVERY TIME</u>
Oscillatory and Stationary Jaw Plates	\$17,277	15 weeks
Concave Filler Block and Bowl & Mantle for Cone	14,024	12 weeks
Lime Feed Drive	1,200	15 weeks
Screens	17,494	8 weeks
Motor Starters	3,800	8 weeks

Total @ 15 weeks delivery - order now:	\$18,477
Total @ 12 weeks delivery - order now:	14,024
Total @ 8 weeks delivery - order in 4 weeks:	<u>21,294</u>

Total	<u>\$53,798</u>
-------	-----------------

Prices do not include tax and shipping.

As far as we know, all other parts are still "shelf" items and can be ordered as they are needed. We will wait to begin full rehab, however, until we get appropriate approvals.

cc: Jim Thompson

RM:sm

12-22-93		Post-It™ brand fax transmittal memo 7671		# of pages » 1
To	MARTIN	From	KOD	
Co.	DIME	Co.	BMC	
Dept.		Phone #	605 578 2107	
Fax #	303 573 1012	Fax #	605 578 1709	

MEMORANDUM

TO: Martin Quick
FROM: Rod MacLeod
DATE: November 23, 1994
RE: Pricing - Crusher Rehab

At this time, the key items that will affect the start-up of crushing, if they are not ordered, would be cone crusher parts and possibly the lime feeder drive. The other key consideration is the time necessary to complete the work required. Troy is still working on additional screening and conveying costs.

The following is a summary of items, cost and lead times for crusher parts:

<u>ITEM:</u>	<u>COST</u>	<u>LEAD TIME</u>
*Oscillatory Jaw		
Upper & Lower plates (L98)	\$6,498	15 weeks
Wedge Center (L98)	1,827	From Receipt of Order
*Stationary Jaw		
Upper & Lower	\$7,400	Del. Prepaid;
Wedge Center	<u>1,552</u>	Freight @ \$10/100
SUBTOTAL Jaw Crusher (excluding tax & freight)	\$17,277	

*NOTE: We can limp along initially by hard facing the jaw plates.

	<u>COST</u>	<u>LEAD TIME</u>
<u>AC 600 Cone Crusher</u>		
Concave Filler Block (600 HYD; 111 lbs)	\$517	12 weeks
Concave Ring (5,560 lbs)	7,816	*current stock
Mantle (3,760 lbs)	5,691	*current stock

F.O.B. shipping point; freight collect

SUBTOTAL Cone crusher subtotal (excluding tax and freight)
\$14,024

* If out of stock when ordered, 12 weeks lead time required. Therefore, need to coordinate order with filler block.

Screens

5 Upper Deck	\$10,975	Stock Items
5 Lower Deck	5,019	" "
1 Seco Punch Plate	<u>1,500</u>	" "
SUBTOTAL (excluding Tax & Freight)	\$17,494	

Conveyor Belt

275' X 36"	2,873.75	Stock Items
109' X 36"	1,139.05	" "
105' X 36"	1,097.25	" "
149' X 36"	1,557.05	" "
188' X 48"	<u>3,468.60</u>	" "
SUBTOTAL (excluding Tax & Freight)	\$10,135.70	

V-Belts

SUBTOTAL 53 belts (excl. Tax & Freight)
\$2,437.56 Stock Item

Miscellaneous

10 Apron Pans	\$3,100.00	Stock Item
9 Wearalloy Plates	504.00	" "
4 Seco Oil Seals	109.28	" "
1 Accumulator Bladder 10 Gal	510.66	" "
1 Accumulator Bladder 5 Gal	245.00	" "
12 Cone Lube Oil Filter	768.00	" "
100 Cans Nord Backing	3,500.00	" "
2 Spider Seals	370.00	" "
1 Scraper	136.00	" "
1 U-Seal	72.00	" "
2 HWI Flexco	30.00	" "

	<u>COST</u>	<u>LEAD TIME</u>
2 HBI Flexco	30.00	" "
4 Flexco Clips	376.00	" "
4 Seco Bearings	4,016.00	" "
Arbars	204.60	" "
10 Return Idlers	929.55	" "
8 Steel	<u>2,000.00</u>	" "
SUBTOTAL (excluding tax & freight)	\$16,901.09	
TOTAL Mechanical	<u>\$78,269.35</u>	

Electrical

Lime Feed Drive	\$1,200	15 Weeks
Motor Starters	5,800	8 Weeks
PLC I/O for Conveyor Motors	4,250	3 Weeks
Contract Programming (est. 120 hrs)	<u>6,000</u>	3 Weeks
SUBTOTAL (excluding tax & freight)	\$18,750	

ITEM

Contract Electric Labor (Contractor Est.)	<u>30,000</u>
SUBTOTAL	\$48,750

Move Regulator Bank	\$12,000	12 Weeks
----------------------	-----------	----------

TOTAL Electric	<u>\$60,750</u>
-----------------------	------------------------

*Recoupable Over 5 Year Period; work done and scheduling by BH Power

RM:sm

cc: T. Fierro
S. Gross
J. Thompson
K. VanBuren

corresp\crshrehb.rjm

MEMORANDUM



G.F. Crusher Rehab
Booth Sulphide

TO: Martin Quick
FROM: Rod MacLeod *R.M.*
DATE: October 31, 1994
RE: AFE - Crusher Rehabilitation

INTRODUCTION

As the oxide project came to a close in 1992, maintenance of the Gilt Edge crushing facility was kept to a minimum. At this point in time, plans are being made to immediately begin processing approximately 700,000 tons of stockpiled sulphide ore immediately followed by crushing Anchor Hill oxide ore in August 1995. Scheduled production rates and crushed product size require that the Gilt Edge crusher undergo full maintenance so production goals can be achieved.

It is estimated that parts and equipment procurement, installation and repairs will demand at least 12 weeks before crushing can commence. It is, therefore, imperative that we begin crusher maintenance immediately if the current goals of the production plan are to be achieved.

CURRENT SITUATION

The following is an itemized list of items requiring replacement, repair or maintenance:

Mechanical (crusher)

General:

- All drive belts (replace).
- Repair/replace oil heater in lube pump tank under cone (*check*).

Hopper:

- Repair grizzlies and mounts.

Apron Feeder:

- Repair apron pans, replace skid plate.
- Build up side plates on hopper (needs replacement).
- Rebuild slat conveyor.
- Redo screen on scalper, hard plate sides and end chute.

Jaw:

- Replace jaw plates.
- Reface fines chute under scalper.
- Repair flywheel and shaft - currently shimmed, but still wobbling *(check and repair if necessary)*.
- Check mains and bearings for water damage.

Conveyors:

- Repair/replace primary and secondary belt scrapers, tubes and air bags on conveyors.
- Bottom 4 belts need replacement.
- Repair/replace impact return rollers.
- Check upper belts.

Seco:

- Replace upper and lower deck screens in Seco.
- Rechute Seco for clay.
- Replace Seco main bearings.

Cone:

- Inspect/replace bowl and mantle on cone.
- Inspect/replace eccentric and spiders on cone.
- Inspect fans and bladders.
- Replace rollers and repair scoop on sampler.

Electrical

Control Wiring:

- Needs checking and change some connections.

External Wiring:

- Needs checking and replacement where worn and damaged by water.
- Approximately 150 external cables. Most are input/output cables to start, stop, alignment and zero speed switches.
- All switches will need to be checked and replaced as needed.
- All motor feeds will need checking and replace if shorted or bad.

Motors:

- Resistance check to ground on all motor windings.
- Run without load to check bearings and replace if bad.

Additional Screening and Conveyors:

- Installation of control wiring, motor feeds and switch gear.

Operational Prep.:

- An estimate of 120 hours (estimated by outside electrical consultant) is required to configure software with crushing circuit.

COST ESTIMATE

Mechanical

Parts and Supplies	\$80,000
Temporary Labor (3 people)	5,000
Mobile Crane	9,200

Electrical

Parts and Supplies	30,000
Contract Labor	30,000

Move Regulator Bank (BHP&L - Recoupable over 5 years) 12,000

Weightometer (includes steel and concrete) 7,000

***Additional Screening & Conveying (2 screen decks and up to 6 conveyors)** 75,000

Contingency (10% on parts and supplies only) 29,200

TOTAL **\$377,400**

* Estimate based on literature review; add on for sulphides only.

RM:sm

cc: J.T.
file

misc\crushreh.afs

AUTHORITY FOR EXPENDITURE

PROJECT: Crusher Rehabilitation	AFE NUMBER:						
LOCATION: Gilt Edge Mine, Deadwood, SD	PAGE <u>1</u> OF <u>1</u>						
DATE: October 31, 1994	AFE AMOUNT: \$377,400						
TYPE OF EXPENDITURE: <table><tr><td><input checked="" type="checkbox"/> DISCRETIONARY</td><td><input checked="" type="checkbox"/> MAINTENANCE</td></tr><tr><td><input type="checkbox"/> SAFETY</td><td><input type="checkbox"/> REGULATORY</td></tr><tr><td><input type="checkbox"/> PRODUCT QUALITY</td><td></td></tr></table>		<input checked="" type="checkbox"/> DISCRETIONARY	<input checked="" type="checkbox"/> MAINTENANCE	<input type="checkbox"/> SAFETY	<input type="checkbox"/> REGULATORY	<input type="checkbox"/> PRODUCT QUALITY	
<input checked="" type="checkbox"/> DISCRETIONARY	<input checked="" type="checkbox"/> MAINTENANCE						
<input type="checkbox"/> SAFETY	<input type="checkbox"/> REGULATORY						
<input type="checkbox"/> PRODUCT QUALITY							
EXPENDITURE DESCRIPTION: See attached.							
REASON: See attached.							
ANTICIPATED RESULTS: See attached.							
PREPARED BY: Roderick J. MacLeod	DATE: October 31, 1994						
APPROVED BY:	DATE:						
APPROVED BY:	DATE:						
APPROVED BY:	DATE:						
APPROVED BY:	DATE:						

P. 1

RECEIVED
P. 1
DEC 22 1994

MEMORANDUM

TO: Martin Quick

FROM: Rod MacLeod

DATE: December 21, 1994

RE: Placement of orders for long lead-time crusher parts

The following is a list of parts that we will be ordering for the crusher over the next one to seven weeks:

[illegible]

As far as we know, all other parts are still "shelf" items and can be ordered as they are needed. We will wait to begin full rehab, however, until we get appropriate approvals.

cc: Jim Thompson

RM:sm
corresp)

12-22-93

Post-It™ brand fax transmittal memo 7671 # of pages > 1

To	MARTIN	From	KOD
Co.	DALL	Co.	BML
Dept.		Phone #	605 578 2167
Fax #	303 573 1012	Fax #	605 578 1709

BROHM.
Broken Sulphides
1994 only
600,000 tons @ 0.050 pl-

5/9/94

Description	BUDGET		PROJECTED		VAR.	
	Unit Cost	Total (000's)	Unit	Total	Unit	Total 000's
Mining		0				
Crushing	2.35	1,410	3.37	2,359	1.02	949
Plant		1,283				
Service		258				
Admin		179				
Total		3,130				

Net Cash Profit from Budget \$2.429 million

Revised Cash Profit due to increased crush cost = \$1.664 million

May-9th 94

Gilt Edge Crushing

Do it ourselves

Cost of Power Equipment - \$309,000

Repairs To Crusher - \$70,000

and B P & L have allocated all over power to other users. 12 Week lead time.

G.E. Prim / Sec. Crush. 750,000 tons

Cost to repair crusher - \$70,000 \approx 0.093
+ 10-12 weeks lead-time.

Our prim/sec. crusher costs - 0.70

Cost to produce $\frac{3}{8}$ " product - 1.72

Cost of hauling ore to our crusher - 0.60

Mobilization - 0.026

Feed Crusher - 0.40

Cost per ton = 3.⁵⁴

Aggregate Crush AU

Prim / Sec / Ter Crush - 2.60

Mobilization / Bank - 0.027

Cost per ton - 2.63

Savings 0.914 \approx \$682,500.